Board of Education Agenda Item

Item: _____H._____   **Date:**   ___May 25, 2005_____

Topic: Public Hearing for the Proposed Computer/Technology Standards of Learning for Grades K-12

Presenter: Mr. Lan Neugent, Assistant Superintendent for Technology

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Origin:

__   Topic presented for information only (no board action required)

____   Board review required by
               ___x_   State or federal law or regulation
               ____   Board of Education regulation
               ____   Other: _____

____   Action requested at this meeting   __x__ Action requested at future meeting:

          Final approval of the Computer/Technology Standards of Learning for Grades K-12.

Previous Review/Action:

____   No previous board review/action

__x__   Previous review/action

          First Review of the Timeline for the Review and Approval of the Computer/Technology
          Standards of Learning for Grades K-12
          date: September 22, 2004
          action: The Board of Education accepted the timeline for the review process for the
                              Computer/Technology Standards of Learning.

          First Review of the Computer/Technology Standards of Learning for Grades K-12
          date: March 25, 2005
          action: The Board of Education approved the dissemination of the proposed
                              Computer/Technology Standards of Learning and established a date for public
                              hearings.

Background Information:
The Board of Education adopted a schedule for review and revisions to the Standards of Learning at its
September 22, 2004, meeting. Accordingly, the Computer/Technology Standards of Learning are
scheduled for revision in 2005. (Code of Virginia § 22.1-253.13:1-2 By October 1, 2000, the Board of
Education shall establish a regular schedule, in a manner it deems appropriate, for the review, and revision
as may be necessary, of the Standards of Learning in all subject areas. Such review of each subject area shall
occur at least once every seven years. Nothing in this section shall be construed to prohibit the Board from

conducting such review and revision on a more frequent basis.)

Summary of Major Elements
A review of comments on the existing Computer/Technology Standards for Grades K-12 revealed several major areas of concern:
- There is insufficient emphasis on the ethical and responsible use of computers
- Computer/technology skills should not be taught in isolation; but integrated in all areas of the curriculum
- Instruction of computer skills should not be limited to specific grade levels or content areas
- Students need earlier exposure to a variety of technologies and software applications

In response to input, a set of standards were drafted that address the concerns of educational technology stakeholders as well as reflect a consensus of identification of technology skills and competencies that students in grades K-12 should exhibit. The proposed standards cover foundation technology skills and competencies for students that include:
- Basic Operations and Concepts
- Social, Ethical, and Human Issues
- Technology Productivity Tools
- Technology Communication Tools
- Technology Research Tools
- Technology Problem-Solving and Decision-Making Tools

Since the introduction of the current Computer/Technology Standards in 1995 and 2000, the use of technology in schools and classrooms has increased an the use of newer, more advanced technologies has become commonplace. The proposed standards are organized into four grade ranges: K-2, 3-5, 6-8, and 9-12. This provides greater opportunity for students to develop, reinforce, and amplify their skills.

Following the March 23, 2005, Board of Education meeting, a superintendent's memo was distributed. The proposed standards were included in the memo along with information announcing the public hearing on May 25, 2005. An email address was also provided to receive comments. Information regarding the proposed standards and the public hearing was communicated to various stakeholder groups and organizations.

Superintendent's Recommendation:
N/A

Impact on Resources:
The Department of Education administers the state standards review process. The agency's existing resources can absorb this responsibility at this time.

Timetable for Further Review/Action:
Following the public hearing the Computer/Technology Standards for Learning for Grades K-12 will be presented for final action by the board at the June 2005 meeting. Upon adoption by the board, the Department of Education will distribute the Computer/Technology Standards for Learning for Grades K-12 to school divisions and implement procedures for providing technical assistance and resources as part of the statewide system of support.

Proposed
Computer/Technology Standards of Learning
Grades K-2

Basic operations and concepts
Students demonstrate an understanding of the nature and operation of technology systems.
C/T K-2.1
a) Identify the computer as a machine that helps people at school, work, and play.
b) Demonstrate an ability to perform a variety of tasks; among them turning on and off a computer, starting and closing programs, saving work, creating folders, using pull-down menus, closing windows, dragging objects, and responding to commands.

Students are proficient in the use of technology.
C/T K-2.2
a) Demonstrate the use of mouse, keyboard, printer, multimedia devices, and earphones.
b) Use multimedia resources such as interactive books and software with graphical interfaces.

Social, ethical, and human issues
Students practice responsible use of technology systems, information, and software.
C/T K-2.3
a) Know the school's rules for using computers.
b) Understand the importance of not sharing personal information or passwords with others.
c) Understand the basic principles of the ownership of ideas.

Students develop positive attitudes towards technology.
C/T K-2.4
a) Demonstrate respect for the rights of others while using computers.
b) Understand the responsible use of equipment and resources.

Technology research tools
Students use technology to locate, evaluate, and collect information from a variety of sources.
C/T K-2.5
a) Identify information in various formats.
b) Identify available sources of information.

Problem-solving and decision-making tools
Students use technology resources for solving problems and making informed decisions.
C/T K-2.6
a) Recognize that technology can be used to solve problems and make informed decisions.
b) Identify and select technologies to address problems.

Technology communication tools
Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
C/T K-2.7
a) Identify the best tool to communicate information.
b) Use technology tools for individual writing, communication, and publishing activities.
c) Demonstrate the ability to create, save, retrieve, and print document.

Basic operations and concepts
Students demonstrate an understanding of the nature and operation of technology systems.
C/T 3-5.1
a) Discuss common uses of computers in their daily life and the advantages and disadvantages those uses provide.
b) Communicate about basic technology components with appropriate terminology.

Students are proficient in the use of technology.
C/T 3-5.2
a) Use skills and procedures needed to operate various technologies such as scanners, digital cameras and hand-held computers.
b) Identify basic software applications such as word processing, databases, and spreadsheets.

Social, ethical, and human issues
Students understand the ethical, cultural, and societal issues related to technology.
C/T 3-5.3
a) Identify how technology has changed society in areas such as communications, transportation, and the economy.
b) Discuss ethical behaviors when using information and technology.

Students practice responsible use of technology systems, information, and software.
C/T 3-5.4
a) Understand the need for the school division's acceptable use policy.
b) Discuss the rationale of fair use and copyright regulations.
c) Follow rules for personal safety when using the Internet.

Students develop positive attitudes towards technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.
C/T 3-5.5
a) Work collaboratively when using technology.
b) Practice and communicate respect for people, equipment, and resources.
c) Understand how technology expands opportunities for learning.

Technology research tools
Students use technology to locate, evaluate, and collect information from a variety of sources.
C/T 3-5.6
a) Collect information from a variety of sources.
b) Evaluate the accuracy of electronic information sources.
c) Enter data into databases and spreadsheets.

Problem-solving and decision-making tools
Students use technology resources for solving problems and making informed decisions.
C/T 3-5.7
a) Determine when technology tools are appropriate to solve a problem and make a decision.
b) Select resources to solve problems and make informed decisions.

Technology communication tools

Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

C/T 3-5.8

a) Produce documents demonstrating the ability to edit, reformat, and integrate various software tools.
b) Use technology tools for individual and collaborative writing, communication, and publishing activities.
c) Use telecommunication tools to communicate and share information with others.

Basic operations and concepts
Students demonstrate an understanding of the nature and operation of technology systems.
C/T 6-8.1
a) Describe how technology impacts learning.
b) Explore how software and hardware are developed to respond to the changing needs of technology.
c) Describe compatibility issues between various types of technology.

Students are proficient in the use of technology.
C/T6-8.2
a) Understand that hardware and software have different operating systems that may affect their use.
b) Use self-help features such as online tutorials and manuals to learn to use hardware and software.

Social, ethical, and human issues
Students understand the ethical, cultural, and societal issues related to technology.
C/T 6-8.3
a) Demonstrate knowledge of current changes in information technologies.
b) Explain the need for laws and policies to govern technology.
c) Explore career opportunities in technology related careers.

Students practice responsible use of technology systems, information, and software.
C/T 6-8.4
a) Demonstrate the correct use of fair use and copyright regulations.
b) Demonstrate compliance with the school division's Acceptable Use Policy and other legal guidelines.

Students develop positive attitudes towards technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.
C/T 6-8.5
a) Work collaboratively and/or independently when using technology.
b) Practice preventative maintenance of equipment, resources, and facilities.
c) Explore the potential of the Internet as a means of personal learning and the respectful exchange of ideas and products.

Technology research tools
Students use technology to locate, evaluate, and collect information from a variety of sources.
C/T 6-8.6
a) Use databases and spreadsheets to evaluate information.
b) Use technology resources such as calculators and data collection probes for gathering information.
c) Use Internet and other electronic resources to locate information in real time.

Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.
C/T 6-8.7
a) Use search strategies to retrieve information.
b) Evaluate the accuracy, relevance, and appropriateness of electronic information sources.

Problem-solving and decision-making tools

Students use technology resources for solving problems and making informed decisions.

C/T 6-8.8

a) Employ technology in the development of strategies for solving problems.
b) Use a variety of technologies to identify and provide possible solutions to real-world problems.
c) Use content-specific tools, software, and simulations such as environmental probes, graphic calculators, exploratory environments, and web tools.
d) Participate in collaborative problem-solving activities.
e) Select and use appropriate tools and technology resources to accomplish a variety of tasks.

Technology communication tools

Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

C/T 6-8.9

a) Choose the appropriate tool, format, and style to communicate information.
b) Independently use technology tools to create and communicate for individual and/or collaborative projects.
c) Produce documents demonstrating the ability to edit, reformat, and integrate various software tools.

Basic operations and concepts
Students demonstrate an understanding of the nature and operation of technology systems.
C/T 9-12.1
a) Discuss the inherent advantages and limitations of technology.
b) Define the relationship between infrastructure, electronic resources, and connectivity.
c) Identify and describe the impact of new and emerging technologies and their applications.

Students are proficient in the use of technology.
C/T 9-12.2
a) Identify and resolve hardware and software compatibility issues.
b) Develop and communicate strategies for solving routine hardware and software problems.

Social, ethical, and human issues
Students understand the ethical, cultural, and societal issues related to technology.
C/T 9-12.3
a) Assess the potential of information and technology to address personal, lifelong learning, and workplace needs.
b) Demonstrate knowledge of electronic crimes such as viruses, pirating, and computer hacking.
c) Explore and participate in online communities, and online learning opportunities.
d) Identify the role that technology will play in future career opportunities.

Students practice responsible use of technology systems, information, and software.
C/T 9-12.4
a) Adhere to fair use and copyright guidelines.
b) Adhere to the school division's Acceptable Use Policy as well as other state and federal laws.
c) Model respect for intellectual property.

Students develop positive attitudes towards technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.
C/T 9-12.5
a) Respectfully collaborate with peers, experts, and others to contribute to an electronic community of learning.
b) Model responsible use and respect for equipment, resources, and facilities.

Technology research tools
Students use technology to locate, evaluate, and collect information from a variety of sources.
C/T 9-12.6
a) Integrate databases, spreadsheets, charts, and tables to create reports.
b) Use available technological tools to expand and enhance understanding of ideas and concepts.

Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.
C/T 9-12.7
a) Analyze and draw conclusions about the comprehensiveness and bias of electronic information sources.
b) Design and implement a variety of search strategies to retrieve electronic information.

Problem-solving and decision-making tools
Students use technology resources for solving problems and making informed decisions.
C/T 9-12.8
a) Investigate and apply expert systems, intelligent agents, and simulations in real-world situations.
b) Select and apply technology tools for information analysis, problem-solving, and decision-making.
c) Use technology resources such as educational software, simulations, and models for problem-solving, and independent learning.
d) Produce and disseminate information through collaborative problem-solving activities.

Technology communication tools
Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
C/T 9-12.9
a) Determine the most effective tool, format, and style to communicate to specific audiences.
b) Use technology-based options, including distance and distributed education, to collaborate, research, publish, and communicate.
c) Practice self-directed use of advanced technology tools for communicating with specific audiences.